FOREST MANAGEMENT UPDATE

by
RLYN PERKEY

NUMBER: 2 DATE: May 3, 1984

For Service Foresters & Consultants

SHELTERWOOD CUTTING FOR OAK REGENERATION

THE GLATFELTER SUCCESS STORY

On February 24, 1984, Wilbur Wolf, Jr., Senior Area Forester for the Glatfelter Pulpwood Company, described at a meeting of the Society of American Foresters in Gettysburg, Pennsylvania, the oak shelterwood cutting prescriptions they have found to be successful in southeastern Pennsylvania. The following is extracted from that presentation:

The purpose of a shelterwood cut is to regenerate the forest by establishing a stand of seedlings or seedling sprouts. While stump sprouts cannot, and in most cases, should not be eliminated, the shelterwood cutting method does not by design rely on them for the bulk of the regeneration.

Glatfelter has properly combined PLACE, TIME, and TECHNIQUE with a good dose of patience to come up with their formula for success.

PLACE

The place is a stand that is nearly fully stocked, with an oak species composition sufficient to provide acorns for the establishment of a new stand. Adequate stocking is needed to provide operable volume for harvesting activity twice in a 10-year period. The stand should have an oak site index between 55 and 75. If the site index is greater than 75, more effort will be required to establish a stand with fewer oaks. This doesn't mean that shelterwood cutting shouldn't be considered on those sites, but expectations must be lowered. In stands with a site index below 55, oak regeneration can probably be obtained with almost any regeneration cutting practice, therefore, the shelterwood method isn't required.

Northeastern Area
State & Private Forestry
Morgantown, WV 26505

TIME

Timing of management activities is critical in terms of the age of the stand and the occurrence of bumper acorn crops. The trees must be old enough to produce acorns for weevils and wildlife, with enough left over for regeneration. This should begin to happen in a fully stocked stand at about age 55.

The first shelterwood cut (seed cut) should be made during a bumper seed crop year, or certainly within three years of a bumper crop. If the cut is made in anticipation of a bumper seed crop and there is none within three years, additional understory control may be needed when the bumper crop does occur. If the cut is delayed more than three years after a seed crop, a significant number of oak seedlings will be lost, reducing the possibilities for maintaining a high oak component in the future stand. The importance of timing the harvest with the acorn crop must be explained to the landowner.

TECHNIQUE

"Leave" trees are marked rather than removal trees. Leave trees are selected from the dominant and occasionally codominant crown classes to minimize the likelihood of epicormic branching on residual stems and to optimize acorn production. The objective after the first cut is a residual stand with a 50% crown cover. All unmarked stems larger than 2" DBH are felled as part of the first harvesting operation, creating a park-like stand. If significant competition is expected from an undesirable understory, it is chemically treated prior to harvest. Undesirable individual stems are treated with a basal spray or hypo-hatchet.

Regeneration evaluation begins 5 years after the initial cut, and the overstory removal occurs when at least 70% of the milacre plots are stocked with a desirable seedling greater than two feet in height. Most removal cuts will be made 5 to 10 years after the seed cut. Besides serving their primary purpose of seed source and shelter, the residual trees also respond well to release and put on some bonus high-value growth just before harvest.

RESULTS

The results obtained with this type of prescription have been very encouraging. An example is a stand that received a seed cut in 1977. In the spring of 1983, the regeneration survey revealed that 6,000 out of 13,000 stems per acre were oak-hickory. Of these 6,000 stems, 3,800 of them were over four feet high. This is a good indication that oak-hickory will be a substantial component in the stand.

When selling this concept to landowners and loggers, there are some other resource considerations worth mentioning. The stand will have a park-like appearance after the initial cut; if the slash is properly treated. Aesthetically, this can be very appealing. However, ultimately the residual trees do need to be cut to release the intolerant understory and after this is done the area will look like a shrubby opening for several years. This new stand will bring about immediate benefits for many wildlife species while in the brushy stage of development. The regeneration of a stand with a significant oak composition will have long-term benefits for many creatures dependent upon mast from the oak forest.

* * * * * * * * * *

LOOKING FOR A NEW COST-SHARE PRACTICE?

by Kenneth F. Lancaster

In January, 1981, a special forestry practice, SP-44, was approved by ASCS in Carroll County, New Hampshire. Under this practice, a forest landowner is provided ACP cost-share assistance for a detailed management plan prepared by a consultant forester. This plan includes a forest inventory, a cover-type map of the property, and a management prescription for each stand. Additionally, the landowner signs a "Landowner Agreement" in which he agrees to maintain his forestland under management for a minimum period of ten years, and all forestry practices initiated during this lifespan must be in accordance with the forester's recommendations.

The average cost of preparing the management plan is about $7.50 per acre. The Agriculture Conservation Program (ACP) cost-share assistance for this practice is $3.00 per acre, or 40% of the total cost. Five consultant foresters have participated in the program in Carroll County. The practice has expanded each year and in 1984, there are six counties (out of a total of ten) promoting the special practice. As of November, 1983, 15,557 acres were covered under the plans in the State. Over 12% of the proposed forestry work (commercial and non-commercial) that needs to be performed in the next ten years has been accomplished.

Although this is a new approach and a departure from the old ways of doing business, the system has many appealing attributes in increasing efficiency of the service forester and promoting an expanded use of the program.

Less service forester's time is required to implement practices recommended in the plan and landowners know what cost-share practices need to be employed over the 10-year span, and are encouraged to schedule their work over this time period. After the plan is approved by the service forester initially, individual requests for cost-share assistance can be technically approved and accomplished by consultants, resulting in fewer visits to the site by the service foresters.

Changing trends in markets (firewood) and landowner attitude toward girdling hardwood poletimber dictate that innovative procedures be employed to foster a greater use of cost-share funds for practices other than hardwood TSI (mostly thinning pole stands), where accomplishment levels have been the highest under the ACP. SP-44 provides the opportunity to "shift gears" and to redirect the forestry thrust away from TSI and on to other needed cost-share practices such as site preparation for natural regeneration, stand conversion, thinning sapling stands to change composition where it is essential, pruning pine stands, etc., or where accomplishment levels have been traditionally low.

The forest management plan practice is a team effort by both the public and private forester. It has proven successful in encouraging the landowner to rely more heavily on the private sector for technical assistance. Most importantly, forest practice recommendations are being followed, resulting in improved harvesting methods and the employment to a greater extent of cultural practices to upgrade forest stands.

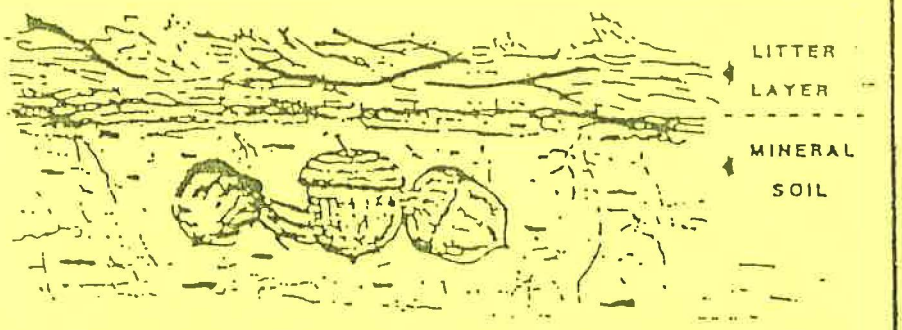
Before this special practice can be installed, it must be approved by the Washington Office of the ASCS. That approval can only be obtained with the support of your State Committee and other officials at the local level who are able to explain the need for the practice.

* * * * * * * * * * *

OAK REGENERATION AND FIRE

It has been noted by many observers that the absence of fire from the oak forest has given the competitive edge to species that compete with the oaks. A paper written by Robert McQuilkin (NCFES, Columbia, Missouri) and presented by Kurt, Gottschalk (NEFES, Morgantown, West Virginia) at a recent SAF meeting revealed some of the reasons for this phenomenon. The following, based on information disclosed in the paper and presentation, illustrates the characteristics that give oaks a few advantages over some other hardwood species. (See illustrations that follow.)

1.



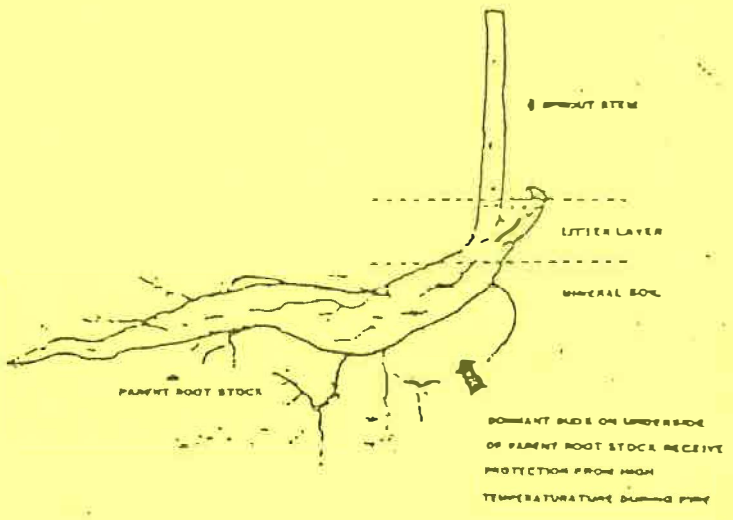
1. Location of Root Collar

Like other species with heavy seeds, oak seedlings are often established in mineral soil because the acorns are buried there by animals. This locates the root collar of the seedling in the mineral soil where it is relatively well protected from surface fires. There is a concentration of dormant buds around the root collar. If a surface fire kills the top of the tree these dormant buds are often protected and able to provide a new sprout very quickly. Light-seeded species like ash and tulip poplar do not share this advantage.

2. Shape of the Seedling Sprout

Seedling sprouts have a strong tendency to have an "S" shaped curve in the vicinity of the root collar. This shape helps protect the dormant buds on the lower side of the stem from the heat produced by fire. After the top is killed, these buds are available to produce new sprouts.

2.



3.

3. Callus Tissue

When the tops of saplings and seedling sprouts are killed, callus tissue forms around the remaining live root tissue. This callus tissue houses a large number of dormant buds that are then available for sprouting if the top is again killed.